

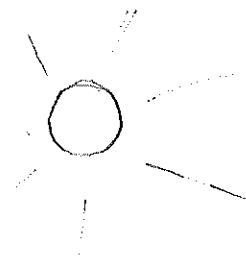
Energy in an Ecosystem

1.1.7 Describe transfer and transformation processes

Transfer <i>Of energy & matter</i>	Flow does not involve a change of state, requires less energy	The movement of material through living organisms (carnivores eating other organism)
		The movement of material in a non-living process (water being carried by a stream)
		The movement of energy (ocean currents transferring heat)
Transformation <i>Of energy & matter</i>	Flow involves a change of state	Energy to energy (light converted to heat by radiating surfaces)
		Matter to energy (burning fossil fuels)
		Matter to matter (soluble glucose converted to insoluble starch in plants)
		Energy to matter (photosynthesis)

"E"

2.5.3 Describe and explain the transfer and transformation of energy as it flows through an ecosystem



2 types of light waves
UV & IR

$1400 \text{ J s}^{-1} \text{ m}^{-2}$ E reaches Earth

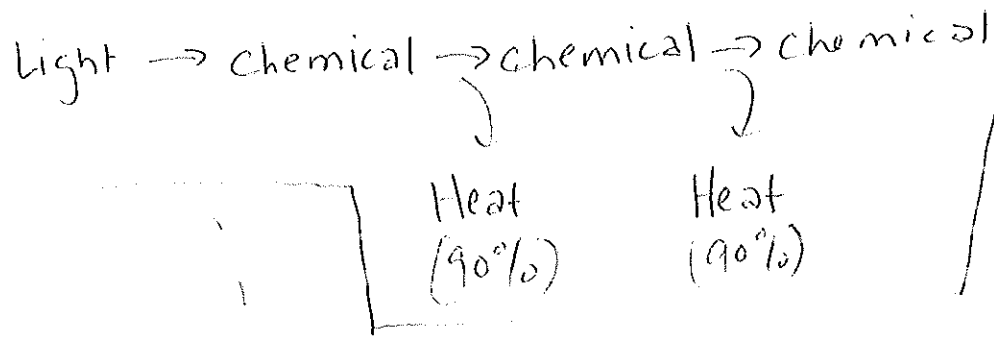


60% gets reflected or absorbed by Atmosphere

So Then what Happens??

40% E reaches Earth's surface

Energy in an ecosystem Generally



lots Reflected by snow, ice, land, water

Heats up land & water (powers H_2O cycle)

Small amount available for plants.

Reflected by leaves

Wrong wave length (wrong color)

Passes through leaf

Usable

The plant uses some of its newly converted E for Respiration. The rest is available to be made into Biomass. Higher trophic levels eat producers & take in 5-20% of Energy (Avg. is 10%)

Low Ecological Efficiency

(% E transferred from one trophic level to the next)

Photosynthesis (about 0.06%)
Light -> Chemical Energy